

Second Grade

Build It Up!



During these learning experiences, students explore their natural world by observing, classifying, and manipulating natural objects found in their area. Students use these observations to determine possible uses for the natural resources found around them.

Through direct manipulation of their natural world, students discover that objects found in nature have very different physical characteristics. Some objects are heavy, while others are light. Some are rough and large, while others are soft and small. Students learn that these differences are based upon the composition of the natural resource. While observing the characteristics, students learn that scientists use these properties to classify and rank resources such as rocks. Students use the classification of these resources to predict their use. The opportunity to conduct tests, collect data, and creatively manipulate objects found in their area, allow students to further understand the world around them.

BUILD IT UP!

Overview of Learning Experiences

Engage

Focus: TEKS 2.5

Organisms, objects, and events have properties and patterns. Classify and sequence organisms, objects, and events based on properties and patterns.

Focus: TEKS 2.10:

The natural world includes rocks, soil, water, and gases of the atmosphere. Identify uses of natural resources.

Goals:

- Students take a nature walk to locate natural resources found around the playground
- Students sort, classify, and name the groups according to the object's physical properties

TEKS Assessed

- 2.2 A ask questions about organisms, objects, and events;
- 2.2 D gather information using simple equipment and tools to extend the senses
- 2.3 A make decisions using information
- 2.4 A collect information using tools including hand lenses
- 2.5 A classify and sequence organisms, objects, and events based on properties and patterns

Explore

Focus: TEKS 2.5

Organisms, objects, and events have properties and patterns. Classify and sequence organisms, objects, and events based on properties and patterns.

Focus: TEKS 2.10:

The natural world includes rocks, soil, water, and gases of the atmosphere. Identify uses of natural resources.

Goals:

- Students manipulate various materials and use natural resources physical properties to rank several from hardest to softest

TEKS Assessed

- 2.2 D gather information using simple equipment and tools to extend the senses
- 2.3 A make decisions using information
- 2.4 A collect information using tools including hand lenses
- 2.5 A classify and sequence organisms, objects, and events based on properties and patterns

Explain

Focus: TEKS 2.5

Organisms, objects, and events have properties and patterns. Classify and sequence organisms, objects, and events based on properties and patterns.

Focus: TEKS 2.10:

The natural world includes rocks, soil, water, and gases of the atmosphere. Identify uses of natural resources.

Goals:

- Students listen to a book describing the composition and use of rocks in the past and present
- Students illustrate their understanding of rock use by drawing examples of ways rocks are used in the past and present

TEKS Assessed

- 2.2 C compare results of investigations with what students and scientists know about the world
- 2.3 A make decisions using information
- 2.5 A classify and sequence organisms, objects, and events based on properties and patterns
- 2.10 B identify uses of natural resources

BUILD IT UP!

Overview of Learning Experiences

Elaborate

Focus: TEKS 2.5

Organisms, objects, and events have properties and patterns. Classify and sequence organisms, objects, and events based on properties and patterns.

Focus: TEKS 2.10:

The natural world includes rocks, soil, water, and gases of the atmosphere. Identify uses of natural resources.

Goals:

- Students apply their knowledge of the uses of natural resources by listing good house building materials and drawing the resulting home
- Students listen to two stories and analyze the effectiveness and use of the house building materials in the stories
- Students develop the criteria of good house building materials and design/build a model demonstrating the effectiveness of those materials
- Students analyze the available materials in a given area and compare to the materials in the area they live

TEKS Assessed

- 2.1 B learn how to use and conserve resources and dispose of materials
- 2.2 A ask questions about organisms, objects, and events; (B) plan and conduct simple descriptive investigations; (C) compare results of investigations with what students and scientists know about the world
- 2.5 A Classify and sequence organisms, objects, and events based on properties and patterns
- 2.10 B identify uses of natural resources

Evaluate

Focus: TEKS 2.5

Organisms, objects, and events have properties and patterns. Classify and sequence organisms, objects, and events based on properties and patterns.

Focus: TEKS 2.10:

The natural world includes rocks, soil, water, and gases of the atmosphere. Identify uses of natural resources.

Goals:

- Students manipulate an unknown resource sample and hand lens to determine the physical properties of the sample
- Students predict possible uses for the unknown sample and demonstrate their understanding of those uses by illustrating and explaining the use

TEKS Assessed

- 2.1 B learn how to use and conserve resources and dispose of materials
- 2.2 B plan and conduct simple descriptive investigations
- 2.2 C compare results of investigations with what students and scientists know about the world
- 2.3 A make decisions using information
- 2.5 A classify and sequence organisms, objects, and events based on properties and patterns
- 2.10 B identify uses of natural resources



Science TEKS

- 2.1** The student conducts classroom and field investigations following home and school safety procedures. The student is expected to:
- (A) demonstrate safe practices during classroom and field investigations; and
 - (B) learn how to use and conserve resources and dispose of materials
- 2.2** The student develops abilities necessary to do scientific inquiry in the field and the classroom. The student is expected to:
- (A) ask questions about organisms, objects, and events
 - (B) plan and conduct simple descriptive investigations
 - (C) compare results of investigations with what students and scientists know about the world
 - (D) gather information using simple equipment and tools to extend the senses
- 2.3** The student knows that information and critical thinking are used in making decisions. The student is expected to:
- (A) make decisions using information
- 2.4** The student uses age-appropriate tools and models to verify that organisms and objects and parts of organisms and objects can be observed, described, and measured. The student is expected to:
- (A) collect information using tools including rulers, meter sticks, measuring cups, clocks, hand lenses, computers, thermometers, and balances
- 2.5** The student knows that organisms, objects, and events have properties and patterns. The student is expected to:
- (B) identify, predict, replicate, and create patterns including those seen in charts, graphs, and numbers
- 2.10** The student knows that the natural world includes rocks, soil, water, and gases of the atmosphere. The student is expected to:
- (B) identify uses of natural resources



Language Arts TEKS

- 2.1** Listening/speaking/purposes. The student listens attentively and engages in a variety of oral language experiences. The student is expected to:
- (A) determine the purposes for listening such as to get information, to solve problems, and to enjoy and appreciate
 - (C) participate in rhymes, songs, conversations, and discussions
 - (D) listen critically to interpret and evaluate
- 2.4** Listening/speaking/communication. The student communicates clearly by putting thoughts and feelings into spoken words. The student is expected to:
- (A) use vocabulary to describe clearly ideas, feelings, and experiences
 - (B) clarify and support spoken messages using appropriate props such as objects, pictures, and props
- 2.7** Reading/vocabulary development. The student develops an extensive vocabulary. The student is expected to:
- (A) discuss meanings of words and develop vocabulary through meaningful/concrete experiences
- 2.9** Reading/Comprehension. The student uses a variety of strategies to comprehend selections to be read aloud and selections read independently. The student is expected to:
- (A) use prior knowledge to anticipate meaning and make sense of texts
 - (B) establish purposes for reading and listening such as to be informed, to follow directions, and to be entertained
- 2.10** Reading/literary/response. The student responds to various texts. The student is expected to:
- (A) respond to stories and poems in ways that reflect understanding and interpretation in discussion (speculating, questioning) in writing, and through movement, music, art, and drama
 - (B) demonstrate understanding of informational text in various ways such as through writing, illustrating, developing demonstrations, and using available technology
 - (C) support interpretations or conclusions with examples drawn from text



Mathematics TEKS

- 2.6** Patterns, relationships, and algebraic thinking. The student uses patterns to describe relationships and make predictions. The student is expected to:
- (C) identify, describe, and extend patterns to make predictions and solve problems
- 2.9** Measurement. The student recognizes and uses models that approximate standard units (metric and customary) of length, weight, capacity, and time. The student is expected to:
- (A) measure length, capacity, and weight using concrete models that approximate standard units
- 2.13** Underlying processes and mathematical tools. The student communicates about Grade 2 mathematics using informal language. The student is expected to:
- (A) explain and record observations using objects, words, pictures, numbers and technology



Art TEKS

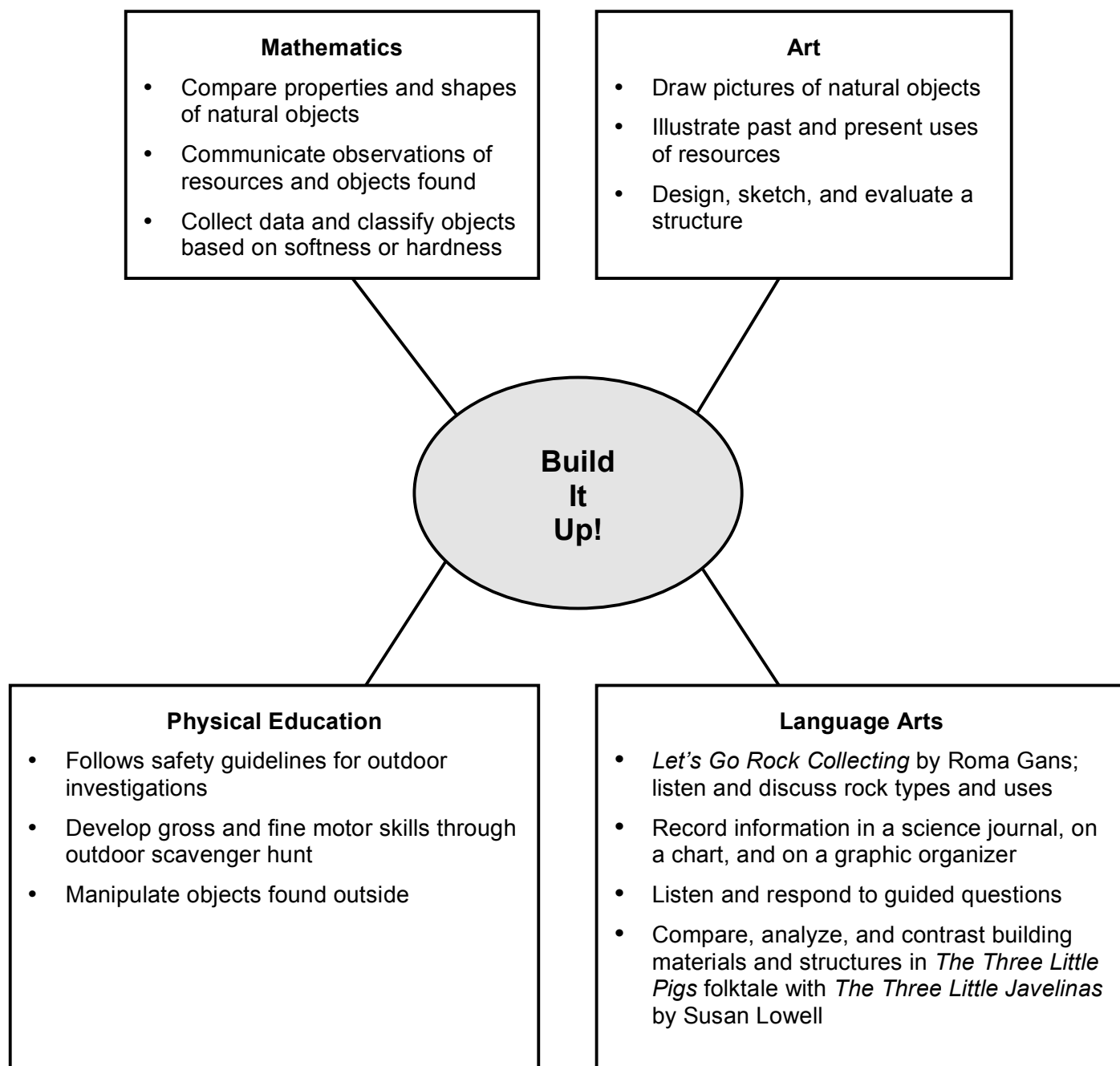
- 2.1** Perception. The student develops and organizes ideas from the environment. The student is expected to:
- (A) identify variations in objects and subjects from the environment, using the senses
 - (B) identify color, texture, form, line, and emphasis in nature and in the human-made environment
- 2.2** Creative expression/performance. The student expresses ideas through original artworks, using a variety of media with appropriate skill. The student is expected to:
- (C) identify and practice skills necessary for producing drawings, paintings, prints, constructions, and modeled forms, using a variety of materials



Physical Education TEKS

- 2.1** Movement. The student demonstrates competency in fundamental movement patterns and proficiency in a few specialized movement forms. The student is expected to:
- (A) travel independently in a large group while safely and quickly changing speed and direction
 - (B) demonstrate skills of chasing, fleeing, and dodging to avoid or catch others
- 2.6** Social development. The student understands basic components such as strategies and rules of structured physical activities including, but not limited to, games, sports, dance and gymnastics. The student is expected to:
- (A) identify goals to be accomplished during simple games such as not getting tagged
 - (B) identify strategies in simple games and activities such as dodging to avoid being tagged

Interdisciplinary Connections



Students in the second grade are naturally curious about the world around them. They should be encouraged to closely observe and inquire about their environment in order to satisfy their curiosities. Second graders begin to explore objects visually and have the capacity to classify these objects as long as it pertains to something they have directly experienced. These learning experiences give students the opportunity to observe, sort and classify a variety of soils and rocks. Observations about rocks will be based upon properties such as particle size, color, shape, size and luster (shiny or dull). Observations made about soil samples should be based upon properties such as color, texture, and particle size. Students should come to understand that terms like *pretty* and *nice* are not physical properties. While students may sort materials subjectively, it should become apparent to students that other people may not agree.

What are natural resources?

Natural resources are valuable materials and energy that come from the natural world. Natural resource materials include rocks, soil, water, and atmospheric gases. Each of these materials has different physical and chemical properties which make them useful in different ways. Natural resources also include different types of energy, such as geothermal energy, kinetic energy of wind and water, and solar energy. Natural resources can be classified as renewable, non-renewable or inexhaustible.

What are renewable resources?

Renewable resources are those that can be replaced in a fairly short period of time. Resources such as water, soil and components of air are generally renewable.

Living organisms

Plants are renewable because new ones can grow from seeds. Plants can be trimmed or fruit can be picked and the plant will continue producing new parts. Animals are also renewable resources, because they give birth to offspring.

Water

Water is a renewable resource, because it passes through the water cycle. Rain and other forms of precipitation bring recycled water supplies to the soil, aquifers, lakes, streams and oceans. Very little of Earth's water is fresh water, so fresh water must be protected from over use and pollution. The pollution in oceans is less apparent to people, but is a major problem for organisms living in polluted areas.

Water has many uses. It is used for transporting people and the products they make. It is used for recreational activities such as boating and swimming. It is used for cleaning, making electricity, and most importantly, providing hydration for us and all animals and the plants that feed us.

Soil

Soil is another major renewable resource. Soil is a combination of organic material and rock that has been broken down into tiny pieces. The organic material includes decaying plant material and animals, fungi, protists, bacteria, and animal wastes that accumulate on the Earth's surface. Soil takes longer to renew than plants, animals or water, but new soil can form within a few years from decaying plants and animal products. Some people speed up the process of soil formation by composting (i.e., adding organic matter).

Like rocks, soils can exist in a variety of textures, color, and particle size. Soils hold the moisture necessary for plants and other organisms to live, and provide stability, nitrogen compounds, and other minerals needed

for plants to grow. A common misconception is that plants use soil to make food, when in fact plants make their own food from carbon dioxide in the air and water through a process called photosynthesis.

Fertilizers are often referred to as “plant food.” Although they do provide nitrogen compounds and minerals, they do not provide the energy that the plant uses to live and grow. This energy comes from the breakdown of the food the plant makes during photosynthesis.

Air

Different components of the air are renewable. Like water, the components have cycles, such as the carbon dioxide/oxygen cycle and the nitrogen cycle.

What are non-renewable resources?

Non-renewable resources take millions of years to form. Once they are used up, they are gone. Non-renewable resources can be extended by recycling, reusing, and reducing our rate of use, but they cannot be reformed. Non-renewable resources include rocks, minerals, oil and coal.

Rocks

Rocks are made of different minerals. They exist in a variety of sizes and textures, depending upon the way in which they formed (igneous, metamorphic, sedimentary). Early man first discovered that rocks could be made into tools for uses like hunting and cooking. Today rocks are used for a wide variety of purposes and items. For example: limestone is used as a building material; it can also be crushed and converted into cement to make concrete for roads and other structures. Iron and aluminum that is used in many metal objects comes from rocks that contain these metals. Rocks can also be carved into sculptures and statues.

Minerals

Minerals are the “building blocks” of rocks. Common minerals that are mined for everyday use include quartz and calcite. Sand made of quartz, which is often found in rivers that have eroded quartz-containing rocks, is used in the production of glass. Calcite is the primary mineral in limestone. Other minerals include metals (like iron, aluminum, and copper) that are used in the manufacture of many items, “precious metals” like gold and silver, as well as gemstones (diamonds, rubies, etc.) that are used to make jewelry. Several types of minerals are used as pigment to make different colors of paint. Coal is also a mineral that is used primarily as a fuel, but is also used in the manufacture of some plastics, paint, and other goods.

Oil and Natural gas

Oil and natural gas, found in rock formations deep within the Earth, are used for fuel. Oil is also used to make gasoline (fuel), plastics, fertilizers, pesticides, and many other products. There are many ways in which we can conserve these non-renewable resources. One way is by recycling or re-using plastic products. Another is to reduce our use of processed materials that require fuels (for example, unplugging or turning off lights and appliances when they’re not being used; walking or bicycling instead of taking the car).

What are inexhaustible resources?

Inexhaustible resources are those materials that are incapable of being depleted (even for millions of years, according to earth scientists). Major inexhaustible resources include tidal forces, ocean currents, wind energy, and solar energy.

BUILD IT UP!

ENGAGE

Teaching Guide

EARTH IN A BAG

Suggested Time: 60 Minutes

Safety: Prior to taking students outside, preview the area to locate any safety concerns that should be brought up with the students. Remind the students that they should never pick up items that are unrecognizable or sharp, and under no circumstance should anything be placed in their mouths. If there are questions regarding certain finds, remind the students to always ask the teacher before handling the items. Preview the area before taking the students outside to ensure there are plenty of items to choose from and that there are no additional safety concerns.

Materials

For each group:

1 pack of index cards

For each student:

1 paper lunch sack

1 plastic resealable bag

Student Notebook

1. This experience requires the students to locate items on a nature scavenger hunt. Review all safety rules before going outside. Explain that you are going on a nature scavenger hunt and you are to be hunting for items that come from the Earth. Before taking the students outside, ask the following questions:
 - What kinds of items come from the Earth? (dirt, rocks, leaves, grass, flowers, bugs, and water)
 - How can we tell if an item comes from the Earth? (it grows on the ground or lives outside and humans don't make them)
 - Name some things that we cannot see or touch that are natural things. (air, wind, sunlight)
 - How can we tell if these items came are natural? (Humans don't make them)
 - What kinds of things do you think we will find outside?
2. Explain to the students that each person will receive a paper sack and a plastic baggie. When they find an item that comes from the Earth, they should place it in the sack. Remind the students that we are only "borrowing" the items, and that if the item is living, they should not pick it up, but instead, draw a picture of the item in their notebooks. Explain to the students that some items may be very small and could spill out of the sack. If the item is too small for the sack, they should place it in the resealable baggie. Explain also that some items may be too large for the sack. If this is the case, these items should be left where they are and a picture be drawn and/or explanation be written in their notebook. Only pick up the items large enough to fit in the sack or baggie.
3. Have the students spread out and begin searching for their items. Carefully monitor the students and the items they are choosing. Remind them they should only pick up items that come from the Earth or are "NATURAL."
4. After the students have had adequate time to find about 10-15 items, take the students back inside to further examine their items. Ask the students to each share one item they have found and why they chose that particular item. Reiterate that items coming from the Earth are natural and are not made by humans. Explain to the students that these items are called NATURAL RESOURCES.
5. If a student has items written about or drawn in his/her notebook, provide index cards so that the item can be manually sorted along with the other items brought in from the outdoors.





ENGAGE

Teaching Guide

6. Write the words, *NATURAL RESOURCES* on the board. Ask the students to copy the new vocabulary term in their student notebook. Once copied, ask the students to write down what the word means to them. Allow several students to share their definitions.
7. Explain to the students that they are now going to sort their items into groups. They should closely examine each item or index card and decide to which group that item belongs. Once complete, ask students:
 - What were your groups?
 - Are all your groups the same?
 - How did you decide which group to place the item into?
 - Why are some items in the same group?
8. The teacher should provide the water, air in a balloon, and moist soil to the student's groups.
9. Ask the students to join another student and resort all of their items together. Once complete, ask students:
 - Did you have the same groups as last time?
 - Were there more or less groups? Why?
 - Did you and your partner agree on all of the groups?
 - Was there a particular item that was the most difficult to sort? Why?
 - Was there a particular item that was easiest to sort? Why?
 - How did you and your partner decide where to place the items? (Lead to physical properties)
10. Explain to the students that scientists use physical properties to help them sort items found in nature.



BUILD IT UP!

EXPLORE

Teaching Guide

RESOURCE RANK

Suggested Time: 60 Minutes

1. Provide each student with 1 set of resources (either provided or from Engage activity), a penny, and a piece of coarse sandpaper.
2. Explain to the students that they will be ranking the resources according to the physical property of hardness. Remind the students that scientists use physical properties to help them classify natural resources. To help them rank the resources, they can use the penny, sandpaper, and fingernail to determine hardness.
3. Before proceeding, ask the students to first rank the penny, sandpaper, and fingernail in order of hardness. The results should be that the fingernail is the softest, followed by the penny, and then sandpaper.
4. Explain to the students that scientists frequently use these three items to rank rocks in order of hardness. Rocks that are easily scratched by a fingernail are said to be “soft.” As the rocks get harder, scientists must use a penny and then sandpaper to scratch the rock. Rocks that can only be scratched by the sandpaper are the hardest. Rocks that are easily scratched by a fingernail are the softest. **Note:** Remind students that just because something leaves a mark on the rock, doesn’t mean that it scratched the rock. When looking for a scratch, tell students to look for a cut in the rock, not just a mark on the surface.
5. Discuss the format of the data sheet and provide instruction on how to record the results.
6. Allow enough time for all students to adequately manipulate the materials and classify the resources.
7. Allow each group to report their findings.

Materials

For each group:

1 set of natural resources.
Resource suggestions:
Potter’s clay, ice, wood,
granite, gypsum, talc, basalt,
sandstone, and limestone

For each student:

Bag of natural resources from
Engage activity

1 penny

1 small piece of coarse
sandpaper

BUILD IT UP!

EXPLORE Teaching Guide

Item Name	Can it be scratched with a fingernail?	Can it be scratched with a penny?	Can it be scratched with sandpaper?	Rank (rank from softest to hardest)



BUILD IT UP!

EXPLAIN

Teaching Guide

USING RESOURCES

Suggested Time: 75 Minutes

1. Gather the students together to share the results of the resource sort. Ask the following:
 - What did you learn about resources? (They can be different colors, shapes, sizes and levels of hardness.)
 - Are all resources the same? (no)
 - What happened to the resources when you scratched them with your fingernail? (Some came off on our hands and some did not.)
 - Why did the resources react differently to the scratches made by your fingernail, sandpaper, and the penny? (They have different levels of hardness.)
 - Why aren't all resources the same hardness? (They are made of different materials.)
 - How do we know that resources aren't made of the same material? (They have different levels of hardness. The colors, sizes, and shapes are not really good indicators that the resources are made of different materials. For example granite and limestone are rocks that come in a wide variety of colors, but granite is always very hard and limestone is always comparatively soft.)
 - How do we use resources in our lives? (To build houses, roads, statues, and to make concrete, glass, and metals such as aluminum and steel.)
2. Share the book, *Let's Go Rock Collecting* with the students. Explain that the book will give plenty of information on rocks and what they can be used for. Ask the students to specifically listen for all the different ways that rocks were used in the past and how we use rocks today.
3. Take the students on a walk around the school building. Have the students point out all the places they see natural resources in use. Some suggested stops might include locations that have concrete, bricks, chalk, stoned pathways, wooden shelves, etc.
4. After the book reading and resource hunt, explain to the students that they are going to illustrate some of the uses of rocks that were mentioned in the story and were found on the resource hunt. Give each student a piece of paper that has been folded in half. Ask the students to label one side of paper *past*, and the other *present*. Ask the students to illustrate one way that resources were used in the past and one way that resources are used in the present.

Explain to the students that they may use the ideas from the story or resource hunt, or they may have thought of their own ideas.

Materials

For teacher:

1 copy of *Let's Go Rock Collecting* by Roma Gans and Holly Keller (Illustrator)

For each student:

Student's data sheet from Explore activity

Large sheet of construction paper

Crayons

BUILD IT UP!

ELABORATE

Teaching Guide

USING RESOURCES

Suggested Time: 75 Minutes

1. Explain to the students that you will continue your discussion on the uses of natural resources. Ask the following:
 - If you were going to build a house, what material would you use?
 - What makes this a good material for building a house?
2. Show the students a small action figure or doll. Tell the students that their job is to design a tiny model house for this “person.” Have the students draw a picture of the house that they will build.
3. Explain to the students that you will read a story about some other house builders. Read a traditional version of *The Three Little Pigs*.
4. Ask the Following:
 - What materials did the pigs use to build their houses?
 - Why do you think they chose straw? Sticks? Bricks?
 - Look at the house that you drew. Do you think that the wolf could have blown your house down? Why or why not?
5. Have the students revisit their sketch. Ask the following questions:
 - Would you actually be able to build the house that you drew in the classroom? Why or why not? (Introduce the notion of constraints – too expensive, takes too much time, need tools, scale too large for classroom.)
 - What materials will you use to build the model house and why?

Have the students add to or change their sketch to show the model house that they will build. Have them use pictures and/or words to describe which materials they used and why. Allow students to share their sketches. Allow the students to work in groups to construct their model homes.
6. Read *The Three Little Javelinas* by Susan Lowell and Jim Harris (Illustrator). In this Southwestern retelling, the javelinas construct houses out of tumbleweed, saguaro rib, and adobe. Ask the following questions:
 - Have you ever heard of these materials?
 - Are any of these materials like straw? Which? In what way is it like straw?
 - Are any of these materials like sticks or wood? Which? In what way is it like wood?
 - Are any of these materials like bricks? Which? In what way is it like a brick?
 - Can you think of other uses for these materials?
 - Why might the building materials be different in this version of the story? (Discuss the fact that different materials may be more widely available or more practical in different areas of the world.)
 - Would these be good materials for building in the part of the world where you live? Why or why not?

Materials

For teacher:

A small action figure or doll

A traditional version of *The Three Little Pigs*

The Three Little Javelinas by Susan Lowell and Jim Harris (Illustrator)

For each group:

A variety of building materials such as toothpicks, clay, wood blocks, paper, cardboard, bricks, etc.

For each student:

Drawing paper



EVALUATE

Teaching Guide

RESOURCE USE
Suggested Time: 60 Minutes

1. Explain to the students that they will observe a resource they have seen before and will list several physical properties that they observe. They will also make a detailed drawing of the resource in the center of the web assessment sheet. On the four branches of the center, the students will determine possible uses of the resource. They will describe the use, illustrate the use, and explain why the resource is able to be used in this manner.

Materials

For each student:

- 1 natural resource from the Explore Activity
- Magnifying lens
- 1 assessment web sheet

USE:	
Picture of use	Explanation of use

USE:	
Picture of use	Explanation of use

RESOURCE
Physical Properties:

1.
2.
3.
4.
5.

Illustration:

USE:	
Picture of use	Explanation of use

USE:	
Picture of use	Explanation of use





EVALUATE

Teaching Guide

Assessment Web Sheet Rubric

	0 points	1 point	2 points	3 points	4 points	5 points
Resource Properties	No properties are listed	0-2 properties are listed but do not resemble the provided resource	3-5 properties are listed but do not resemble the provided resource	1-2 properties are listed and closely resemble the provided resource	3-4 properties are listed and closely resemble the provided resource	5 properties are listed and closely resemble the provided resource
Resource Illustration	No illustration is drawn	An illustration is drawn, but does not resemble the resource	An illustration is drawn and colored, but does not resemble the resource		An illustration is drawn and resembles the resource	An illustration is drawn, colored, and resembles the resource
Resource Uses	No resource uses are listed	1-5 resource uses are listed, but do not relate to physical properties	1 resource use is listed and relates to physical properties	2 resource uses are listed and relate to physical properties	3 resource uses are listed and relate to physical properties	4 resource uses are listed and relate to physical properties
Picture of Resource Use	No picture of resource use is drawn	Picture is drawn, but does not match resource use	Picture of resource is drawn and colored, but does not match resource use		Picture of resource is drawn and matches resource use	Picture of resource is drawn, colored and matches resource use
Explanation of Resource Use	No explanations are provided	1-5 explanations are provided but do not relate to resource uses	1 explanation is provided and related to resource use	2 explanations are provided and relate to resource uses	3 explanations are provided and relate to resource uses	4 explanations are provided and relate to resource uses

Total Points _____/25 Possible





READING CONNECTION

Teaching Guide

A Lucky Thing

Alice Schertle. Wendell Minor. Harcourt Brace, 1999.

Thirteen poems, rhyming and free verse, celebrate the sounds, smells, and movements of natural life on a farm. The poems are accompanied by warm and whimsical watercolor paintings. California author. ISBN 0152005412

Everybody Needs a Rock

Byrd Baylor. Peter Parnall. Aladdin Books, 1974.

Everybody needs to have a special rock. This book lists ten rules for finding the rock you need. Black-line sketches are highlighted with soft brown tones. This selection provides a useful connection to units on geology, rocks, and soil. ISMB 0689710518

John Muir, America's Naturalist

Thomas Locker. Fulcrum, 2003.

This illustrated biography of John Muir focuses on his time in Yosemite National Park. Each page has a few lines of text and a quote from Muir's writing and faces a full-page lush landscape painting. A fine introduction to the naturalist and founder of the Sierra Club. ISBN 7555913938

Wump World

Bill Peet. Houghton Mifflin, 1970.

Happy days for the Wumps stop when Pollutians invade and take over the Wumps' planet. After ruining the Wump World, the Pollutians set off to seek new conquests, leaving the Wumps to rebuild their ruined world. This story stimulates thinking about how to preserve our natural resources from pollution. ISBN 0395311292

The Three Little Pigs

Patricia Seibert. McGraw-Hill Children's Publishing, 2002.

A traditional version of *The Three Little Pigs*. ISBN 1577683676

BUILD IT UP!

MATERIALS LIST

Teaching Guide

Engage

For each group:

- ☐ 1 pack of index cards

For each student:

- ☐ 1 paper lunch sack
- ☐ 1 plastic resealable bag
- ☐ Student Notebook

Explore

For each group:

- ☐ 1 set of natural resources. Resource suggestions: Potter's clay, ice, wood, granite, gypsum, talc, basalt, sandstone, or limestone

For each student:

- ☐ 1 penny
- ☐ 1 small piece of coarse sandpaper
- ☐ 1 data sheet

Explain

For teacher:

- ☐ 1 copy of *Let's Go Rock Collecting* by Roma Gans and Holly Keller (Illustrator), (ISBN 0064451704)

For each student:

- ☐ Student's data sheet from Explore activity
- ☐ 1 Large sheet of construction paper
- ☐ Crayons

Elaborate

For teacher:

- ☐ A small action figure or doll
- ☐ *The Three Little Pigs* by Patricia Seibert (ISBN 1577683676)
- ☐ *The Three Little Javelinas* by Susan Lowell and Jim Harris (illustrator), ISBN 0873585429

For each group:

- ☐ A variety of building materials such as toothpicks, clay, wood blocks, paper, cardboard, bricks, etc.

For each student:

- ☐ 1 piece of drawing paper



MATERIALS LIST

Teaching Guide

Evaluate

For each student:

- ☐ 1 natural resource from the Explore Activity
- ☐ 1 magnifying lens
- ☐ 1 assessment web sheet



REFERENCES

Teaching Guide

LessonPlansPage.com

Mineral Information Institute, Colorado. 2001

Mineral Information List. www.mii.org

National Education Standards. www.nap.edu/readingroom.html

Rocks and Their Uses, Scholastic. 2004

Science NetLinks. www.sciencenetlinks.com/lessons



Student Pages

Name _____

Date _____

Item Name	Can it be scratched with a fingernail?	Can it be scratched with a penny?	Can it be scratched with sandpaper?	Rank (rank from softest to hardest)



Name _____

Date _____

USE:	
Picture of use	Explanation of use

USE:	
Picture of use	Explanation of use

RESOURCE	
Physical Properties:	
1.	
2.	
3.	
4.	
5.	
Illustration:	

USE:	
Picture of use	Explanation of use

USE:	
Picture of use	Explanation of use

